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National Weather Radar Testbed

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LONG-TERM GOALS

Provide the Nation with enhanced weather radar that improves the detection of severe weather resulting in increased warning lead times and the saving of lives and property.

OBJECTIVES

Build and operate the first surveillance phased array radar facility available on a full-time basis to the radar meteorological research community. The new system will be able to scan the atmosphere with more detail than the current radars. It will also be able to re-scan areas of severe weather very quickly, improving forecasters' warning capability. In addition, the new technology will gather storm information not currently available, such as rapid changes in wind fields; to provide forecasters with better conceptual storm models and to initialize stormscale forecast models.

APPROACH

Create a unique federal, private, state and academic partnership for developing the phased array radar technology. Participants and their contributions include NOAA's National Severe Storms Laboratory, host and operate the testbed, build facilities to house the testbed and provide funding; and National Weather Service Radar Operations Center, provide the transmitter; Lockheed Martin, build and integrate the system along with in-kind funding; U.S. Navy, provide the antenna and funding; University of Oklahoma's School of Meteorology, School of Electrical and Computer Engineering, and Cooperative Institute for Mesoscale Meteorological Studies, provide funding; Oklahoma State Regents for Higher Education, provide funding; the Federal Aviation Administration, provide funding; and Basic Commerce and Industries, provide support. The project - from research and development to technology transfer and deployment throughout the U.S. - is expected to take 10 to 15 years at an initial cost of approximately $25 million for the facility in Norman.

WORK COMPLETED

The facility to house the phased array radar was completed in April. Installation and testing has been completed and the system will be turned over to the government around mid-October, 2003.

Figure 1. Picture on the left is the newly constructed National Weather Radar Testbed facility. The picture on the right shows the super structure that houses the SPY 1-A antenna and support equipment including the transmitter.

RESULTS

Research data are not yet available from the NWRT.

IMPACT/APPLICATIONS

Provide a test platform for testing phased array radar's potential for improving the detection of severe weather. The testbed will also provide a capability to test multi-uses such as simultaneous aircraft tracking, wind profiling and applications for homeland security.

RELATED PROJECTS

None